AMENDMENT TO THE CLAIMS

This listing of claims will replace all prior versions, and listing, of claims in the application:

Listing of Claims:

1. (Currently amended) A method for the physical vapor deposition (PVD) of dielectric material onto a substrate, said method comprising:

(a) forming an energized monochromatic ion beam;

(b) converting said ion beam into an energized monochromatic beam of neutrals;

(c) directing said beam of neutrals toward a sputtering target;

(d) exposing said target to bombardment by said beam of neutrals;

(e) sputtering particles from said target;

(f) forming a cloud of said sputtered particles proximate to a substrate, <u>wherein the cloud is formed by an increased density of thermalized particles</u>; and

(g) depositing said sputtered particles onto said substrate.

2. (Original) The method as recited in claim 1 wherein said target comprises low-k dielectric material.

3. (Original) The method as recited in claim 2 wherein said low-k dielectric material is organic.

4. (Original) The method as recited in claim 2 wherein said low-k dielectric material is inorganic.

5. (Original) The method as recited in claim 1 wherein said low-k dielectric material has a dielectric constant of about 1.3 to 3.7.

6. (Currently amended) A system for the physical vapor deposition (PVD) of dielectric material onto a substrate, said system comprising:

(a) a sputtering target;

(b) a low energy, large aperture ion source of energized monochromatic ions;

(c) an ion optics system for equalizing, shaping, and directing said ions into an ion beam;

(d) a charge transfer system for neutralization of said ion beam into a beam of neutrals;

(e) means for directing said beam of neutrals toward the target, said beam of neutrals bombarding said target and causing said target to emit sputtered particles;

(f) means for forming a <u>thermalized</u> cloud of said sputtered particles proximate said substrate; and

(g) means for depositing said cloud of said sputtered particles onto said substrate.

7. (Previously presented)The system as recited in claim 6, wherein said target comprises low-k dielectric material.

8. (Previously presented)The system as recited in claim 7 wherein said low-k dielectric material is organic.

9. (Previously presented)The system as recited in claim 7 wherein said low-k dielectric material is inorganic.

10. (Previously presented)The method as recited in claim 1 wherein the ion beam is converted into an energized monochromatic beam of neutrals by passing the ion beam through a charge transfer chamber containing a volume of slower moving neutrally charged gas atoms or molecules, wherein the neutrally charged gas atoms or molecules are slower moving relative to said ion beam.

11. (Previously presented)The method as recited in claim 10 wherein the energized

monochromatic ion beam is formed having an ion energy in the range of 100-400 eV.

12. (Previously presented)The method as recited in claim 1 wherein the energized ion beam is converted into the energized monochromatic beam of neutrals by directing said ion beam through a charge transfer chamber containing a volume of relatively slower moving neutrally charged gas atoms or molecules.

13. Cancelled

14. (Currently amended) The method as recited in claim [[13]] 1 wherein the cloud is formed by increasing the number of collisions between gas molecules and sputtered particles to decrease the directional momentum of said sputtered particles as they propagate toward the substrate.

15. (Previously presented)A method for the physical vapor deposition (PVD) of dielectric material onto a substrate, said method comprising:

forming an energized monochromatic ion beam;

converting said ion beam into an energized monochromatic beam of neutrals by directing said ion beam through a charge transfer chamber containing a volume of relatively slower moving neutrally charged gas atoms or molecules;

directing said beam of neutrals toward a sputtering target;

exposing said target to bombardment by said beam of neutrals;

sputtering particles from said target;

forming a cloud of thermalized sputtered particles proximate to a substrate, wherein the cloud is formed by increasing the number of collisions between gas molecules and sputtered particles to decrease the directional momentum of said sputtered particles as they propagate toward the substrate; and

depositing said sputtered particles onto said substrate.

16. (Previously presented)The method as recited in claim 15 wherein the energized

monochromatic ion beam is formed having an ion energy in the range of 100-400 eV.